Title: A new sedimentary benchmark for the Deccan Traps volcanism?

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Abstract: The origin of the Cretaceous-Paleogene boundary (KPB) mass extinction is still the center of acrimonious debates by opposing partisans of the bolide impact theory to those who favored a terrestrial origin linked to the Deccan Traps volcanism. Here we apply an original and high-resolution environmental magnetic study of the reference Bidart section, France. Our results show that the KPB is identified by an abrupt positive shift of the magnetic susceptibility (MS), also observed by others at the KPB elsewhere. In addition, an anomalous interval of very low MS, carried by an unknown Cl-bearing iron oxide similar to specular hematite, is depicted just below the KPB. Grain-size and morphology of the Cl-iron oxide are typically in the range of hematitic dust currently transported by winds from Sahara to Europe. This discovery is confirmed in the referenced Gubbio section (Italy) suggesting a global scale phenomenon. As a conjecture we suggest an origin by heterogeneous reaction between HCl-rich volcanic gas and liquid-solid aerosols within buoyant atmospheric plumes formed above the newly emitted Deccan flood basalts. Based on this hypothesis, our discovery provides a new benchmark for the Deccan volcanism and witnesses the nature and importance of the related atmospheric change. Citation: Font, E., A. Nedelec, B. B. Ellwood, J. Mirao, and P. F. Silva (2011), A new sedimentary benchmark for the Deccan Traps volcanism?, Geophys. Res. Lett., 38, L24309, doi: 10.1029/2011GL049824.

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